

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An input buffered switch using pipelined simple matching, comprising:

a plurality of input means, each having a plurality of Virtual Output Queues (VOQs) for sending a request signal in every time slot when each VOQ has at least one cell, for outputting the cell according to a grant signal transmitted to each VOQ;

a scheduling means for executing a contention process according to the request signals from each VOQ of the plurality of input means, sending contention results to the plurality of input means and sending switch operation information; and

a switching means for outputting the cell received from the plurality of input means responsive to the switch operation information received from the scheduling means,

wherein the scheduling means includes a plurality of sub-scheduling means for i) executing a contention process ~~for that lasts~~ a plurality of time slots according to the request signals from each VOQ of the plurality of the input means such that, in every time slot, one of said sub-scheduler means begins executing the contention process and a second one of said sub-scheduler means finishes executing the contention process, and ii) producing grant signals as contention results based on only the request signals received at initiation of the contention process,

wherein each VOQ having ~~at least one~~ awaiting cell sends, in ~~every the time slots~~ before the VOQ is emptied, the request signal signals for outputting ~~a the awaiting cell to all of~~ the one sub-scheduling means that begins begin the contention process in ~~a current the time slots~~ before the VOQ is emptied, and ignores the grant signals from the sub-scheduling means when the VOQ is emptied, and

wherein the scheduling means further includes a multiplexing means for multiplexing a contention result of each sub-scheduling means to the plurality of input means.

2. (Cancelled)

3. (Previously Presented) The apparatus as recited in claim 1, wherein the each sub-scheduling means gives priorities to each of the input means in case of the contention process to the same output.

4. (Original) The apparatus as recited in claim 1, wherein each VOQ sends the request signal at every time slot by sending the number of cells waiting in the VOQ to the scheduling means.

5. (Original) The apparatus as recited in claim 4, wherein the scheduling means includes:  
a plurality of sub-scheduling means for executing the contention process for a plurality of time slots according to the request signals from each VOQ of the plurality of the input means in the manner that one sub-scheduler begins a contention process and another sub-scheduler finishes a contention process; and

a multiplexing means for multiplexing a contention result of each sub-scheduling means to the plurality of the input means.

6. (Original) The apparatus as recited in claim 5, wherein the each sub-scheduling means gives a priority to the VOQ that has the largest number of awaiting cells in the VOQ in case of the contention process to the same output.

7. (Original) The apparatus as recited in claim 5, wherein the each sub-scheduling means gives a priority to each VOQ in the contention process to the same output and gives a priority to a VOQ that has the largest number of awaiting cells in the VOQ when the VOQ having the priority does not send the request signal.

8. (Currently Amended) A contention method using pipelined simple matching in an input buffered switch, comprising the steps of:

a0) executing a contention process that lasts multiple time slots, in every time slot at each of a plurality of sub-scheduling means, such that one of the sub-scheduling means starts the contention process in every time slot;

a) at each of a plurality of Virtual Output Queues (VOQs) that has ~~at least one~~ awaiting cell, sending, in ~~every the time slots~~ slots before the VOQ is emptied, a request signals for

outputting the awaiting cell to all of the sub-scheduling means that ~~begins~~ begin the contention process in a current the time slots slots before the VOQ is emptied, and ignoring grant signals from the sub-scheduling means when the VOQ is emptied;

b) at the sub-scheduling means that begins the contention process, executing the contention process for a plurality of time slots according to the request signal from each VOQ that has at least one awaiting cell;

c) when the sub-scheduling means finishes the contention process, sending a grant signal as a contention result to input means associated with the VOQs; and

d) at a transfer-granted VOQ that is granted a transfer, transferring the cell to a switching means according to the contention result,

wherein the contention result is produced based on only the request signals received at initiation of the contention process in the sub-scheduling means.

9. (Previously Presented) The method as recited in claim 8, wherein each of the plurality of sub-scheduling means gives priority to each input means in the contention process to a same output.

10. (Previously Presented) The method as recited in claim 8, wherein each VOQ sends the request signal at every time slot by sending the number of cells waiting in the VOQ to a scheduling means.

11. (Previously Presented) The method as recited in claim 10, wherein each of the plurality sub-scheduling means gives a priority to a VOQ that has the largest number of awaiting cells in the VOQ in the contention process to the same output.

12. (Previously Presented) The method as recited in claim 10, wherein each of the plurality of sub-scheduling means gives a priority to each VOQ in the contention process to the same output and gives a priority to a VOQ that has the largest number of awaiting cells in the VOQ when the VOQ that has the priority does not send the request signal.